PSA-NEWS 3/2025

GEFAS
YOUR SAFETY COMPANY.

Neu - ISO 16321-Norm für Schutzbrillen

Die ISO 16321-Norm ist der aktuellste globale Maßstab für den persönlichen Augenschutz und ersetzt die bestehende europäische Norm EN166.
Die ISO 16321 bietet umfassendere Richtlinien, um besseren Schutz, Haltbarkeit und eine insgesamt höhere Sicherheitsleistung für Schutzbrillen, die in industriellen Umgebungen verwendet werden, zu gewährleisten.

Was sind die Ziele der neuen ISO-Norm?

Die neue ISO-Norm zielt darauf ab:

- Höhere Sicherheit und Haltbarkeit von Schutzbrillen in unterschiedlichen gefährlichen Umgebungen zu gewährleisten.
- Den Schutz gegen eine größere Auswahl von Risiken, einschließlich mechanischer, chemischer und optischer Gefahren, zu verbessern.
- Sicherheitskriterien global zu standardisieren und damit Konsistenz in allen Märkten und Branchen zu fördern.
- Den Tragekomfort und die Nutzung für Anwender zu verbessern und nicht nur die Sicherheit, sondern auch die langfristige Verwendung für die Arbeiter zu berücksichtigen.

Wesentliche Änderungen im Vergleich zur EN166-Norm

Im Vergleich zur EN166 führt die ISO 16321 ein:

- Verschärfte Testprotokolle zur Validierung der Leistung von Brillen unter strengeren Auflagen.
- Aktualisierte Klassifizierungen für verschiedene Schutzstufen, um den Endbenutzern klarere Richtlinien zu bieten.
- Verbesserte Anforderungen an die Schlagfestigkeit, den chemischen Schutz und die optische Klarheit, um noch höhere Sicherheits- und Leistungsniveaus zu gewährleisten.

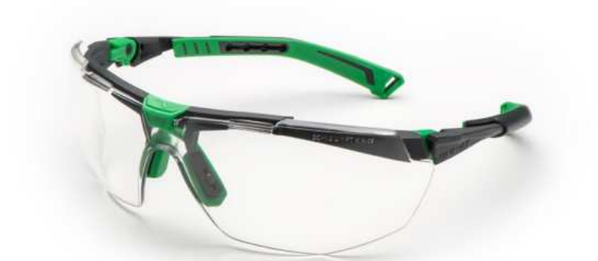
Bei Fragen stehen Ihnen unsere PSA-Experten gerne zur Verfügung:
Frau Gabriele Lechner DW 17 und Herr KommR Alfred Suppin DW 13,
auch persönlich bei Ihnen vor Ort.

EUROPEAN STANDARD

READING THE MARKING

CE MARK

Means that the eyewear complies with the essential health and safety requirements of the European Union (EU) Regulation (EU) 2016/425



LENS: 2C-1.2 U 1 BT 9 K N FRAME: U EN 166 3 4 9 BT

SCALE NUMBER
Level of protection against UV, infrared radiation, or visibile glare.

MANUFACTURER
The logo or letter identifies who made the safety galesses. Univet symbol is "U".

OPTICAL CLASS
Optical quality of the lenses.

MECHANICAL RESISTENCE
Level of protection against speed particles and extreme temperatures.

OPTICAL REQUIREMENT
Additional certified features.

STANDARD NUMBER
It ensures to which specific standard this PPE is compliant.

FIELD OF USE (frame only)
Additional protection features.

PPE CATEGORIES

PPEs are categorized based on the level of risk protection they provide. The European Union, under Regulation (EU) 2016/425, classifies PPE into three categories:

CATEGORY I	CATEGORY II	CATEGORY III
		
Designed to protect against minimal risks. No need of a certification.	PPE that is not covered under Categories I and III. It provides certified protection against intermediate risks. EG: most of our products	This category covers PPE designed to protect against very serious risks, such as death or irreversible health damage. EG. Code 607A70000

Category II and III must be certified by a recognized notified body. Category III PPEs undergo a special control protocol.

SCALE NUMBER

A scale number is formed by a code number and a shade number divided by a hyphen. Welding products do not require a code number.

CODE NUMBER	
2	Ultraviolet (UV)
2C	UV with good colour recognition
4	Infra-red (IR)
5	Sunglare filter without infra-red specification
6	Sunglare filter with infra-red specification

SHADE NUMBER AND TYPICAL LENS COLOURS		VLT RANGE
1.2	Clear, yellow	100% - 74.4%
1.7	In/Out, yellow, clear mirrored, UVR	58.1% - 43.2%
2.5	Brown, smoke	29.1% - 17.8%
3.1	G15, smoke mirrored	17.8% - 8.0%
3,4,5,...11	Welding	-

EUROPEAN STANDARD

OPTICAL CLASS

MARKING	SPHERICAL REFRACTIVE POWER [m^{-1}]	ASTIGMATIC REFRACTIVE POWER [m^{-1}]	DIFFERENCE IN PRISMATIC REFRACTIVE POWER [cm/m]		
			HORIZONTAL BASE OUT	HORIZONTAL BASE IN	VERTICAL
1	± 0.06	0.06	0.75	0.25	0.25
2	± 0.12	0.12	1.00	0.25	0.25
3	+ 0.12 / - 0.25	0.25	1.00	0.25	0.25

1 : Highest optical quality, suitable for continuous use. All of our products are marked "1".
2 : Suitable for intermittent use.
3 : Suitable for occasional use only.

MECHANICAL RESISTANCE

The mechanical resistance is proved shooting a steel ball on the eyewear at a determined speed.

SYMBOL	IMPACT LEVEL	IMPACT SPEED	BALL ø	BALL WEIGHT	SPECTACLES	GOGGLES	FACE SHIELDS
A (T)	High energy impact	190 m/s	ø 6 mm	0,86 g			•
B (T)	Medium energy impact	120 m/s	ø 6 mm	0,86 g		•	•
F (T)	Low energy impact	45 m/s	ø 6 mm	0,86 g	•	•	•
S	Increased robusteness	5,1 m/s	ø 22 mm	43 g	•	•	•

(T) If the impact letter (F, B or A) is followed by the letter T, then the eyewear protects against impact at extreme temperatures (-5°/ +55°C)

OPTIONAL REQUIREMENTS

8	Symbol for protection against short circuit electric arc
9	Symbol for protection against molten metals and hot solids
K	Resistance to surface damage by fine particles
N	Resistance to fogging of oculars
T	Protection against high speed particles at extreme temperatures (-5°/+55° C)
H	Frame suitable for small size head
R	Enhanced reflectance in the infra-red
▽	Symbol for replacement ocular

STANDARD NUMBER

EN 166
Personal Eye Protection: this is the primary standard for all types of personal eye protection. It specifies the general requirements for eye protection, including optical quality, mechanical strength, and protection against various hazards (e.g., dust, liquids, molten metals).

EN 175
Equipment for Eye and Face Protection during Welding and Allied Processes: this standard covers the requirements for eye and face protection equipment used in welding. It includes specifications for the design, performance, and testing of welding masks and shields to ensure they provide adequate protection.

FIELD OF USE (ADDITIONAL MARKINGS WHICH CAN BE FOUND ON FRAME)

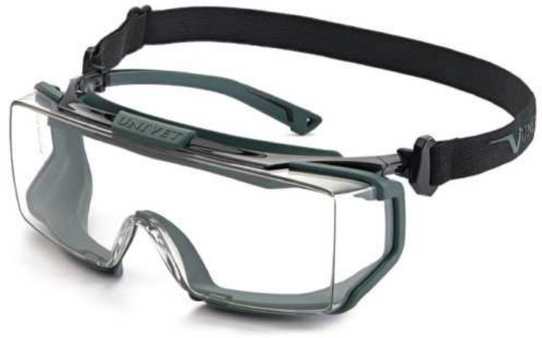
SYMBOL	DESIGNATION	PROTECTION FROM	SPECTACLES	GOGGLES	FACE SHIELDS
No symbol	Basic use	Unspecified mechanical hazards and hazards arising from ultraviolet, visible, infra-red and sun radiation	•	•	•
3	Liquids	Liquids (droplets or splashes)		•	•
4	Large dust particles	Dust with a particle size > 5 µm		•	
5	Gas and fine dust particles	Gases, vapours, sprays, smoke and dust with a particle size < 5 µm		•	
8	Short circuit electric arc	Electrical arc due to a short circuit in electrical equipment			•
9	Molten metals and hot solids	Splashes of molten metals and penetration of hot solids		•	•

ISO STANDARD

READING THE MARKING

16321 MARK

Means that the eyewear complies with the essential international health and safety requirements.



LENS: U UL1,2 DT K N FRAME: 16321 U DT 3 4

MANUFACTURER
The logo or letter identifies who made the safety glasses. Univet symbol is “U”.

FILTERING PERFORMANCE CODE LETTER
Level of protection against UV, infrared radiation, or visible glare.

IMPACT LEVEL
Level of protection against speed particles.

OPTIONAL MARKINGS
Additional certified features.

NUMBER OF THE DOCUMENT
It ensures to which specific standard this PPE is compliant.

FILTERING PERFORMANCE

FILTERS	CODE LETTER	MEET REQUIREMENTS FOR COLOUR DETECTION OF SIGNAL LIGHTS	INFRARED ABSORPTION	ENHANCED IR REFLECTANCE	SHADE NUMBER
UV filter	U	L (optional)	Not applicable	Not applicable	1,2 to 5
IR filter	R	L (optional)	Not needed	R	1,1 to 10
Sunglare filters for occupational use	G	L	R	Not applicable	0 to 3
		L (optional)			4

IMPACT LEVEL

CODE LETTER	MEANING
C (T)	Impact level resistance: 45 m/s
D (T)	Impact level resistance: 80 m/s
E (T)	Impact level resistance: 120 m/s
HM (T)	Impact level resistance: High Mass

If the impact letter (C, D, E or HM) is followed by the letter T, then the eyewear protects against the relative impact even at extreme temperatures (-5 ± 2 / +55 ± 2 °C).

ISO STANDARD

OPTIONAL MARKINGS

CODE LETTER	MEANING	CAN BE FOUND ON	
		LENS / FILTER	FRAME
1	Enhanced optical performance (marking optional)	•	
3	Resistance to droplets		•
4	Resistance to large dust particles		•
5	Resistance to gas and fine dust particles		•
6	Resistance to streams of liquids		•
7	Protection from radiant heat	•	•
9	Resistance to molten metals and hot solids	•	•
CH	Resistance to chemicals	•	•
K	Resistance to surface damage by fine particles	•	
N	Resistance to fogging	•	
T	Extremes of temperature for mechanical tests	•	•

NUMBER OF THE DOCUMENT

It is mandatory to add the reference number of the document, in this case, «16321» on frames and on welding filters.